IN THE CLAIMS

Applicants hereby present the claims, their status in the application, and amendments thereto as indicated:

1. (Currently Amended) A proximity detection circuit comprising:

an antenna;

an oscillator circuit adapted to provide charge to the antenna;

an operational amplifier being operated as a unity gain follower and receiving an antenna signal from the antenna, the antenna signal being representative of an external ~~capacitve~~ capacitive load on the antenna;

a detector circuit receiving the antenna signal via the operational amplifier and being adapted to output a detection signal in response to changes in the antenna signal; and

a comparator receiving the detection signal and being adapted to generate an output signal in response thereto.

2. (Original) The proximity detection circuit of claim 1 further comprising at least one static protection circuit having at least one first diode conducting away from ground and at least one second diode conducting toward a supply voltage.

3. (Original) The proximity detection circuit of claim 1, wherein the detector circuit comprises a voltage peak detector.

4. (Original) The proximity detection circuit of claim 1 further comprising a low-pass filter electrically coupled between the detector circuit and the comparator.

5. (Original) The proximity detection circuit of claim 1 further comprising an amplifier electrically coupled between the detector circuit and the comparator.

6. (Original) The proximity detection circuit of claim 1, wherein the comparator is adapted to generate the output signal when the detection signal has a predetermined voltage level as compared to a reference voltage.

7. (Original) The proximity detection circuit of claim 6 further comprising a switch electrically coupled to the comparator, the switch being adapted to adjust the reference voltage.

8. (Currently Amended) A proximity detection circuit comprising:

an antenna;

means for charging the antenna with an oscillating signal;

an operational amplifier being operated as a unity gain follower and receiving an antenna signal from the antenna, the antenna signal being representative of an external ~~capacitve~~ capacitive load on the antenna;

detection means electrically coupled to the operational amplifier for detecting changes in the antenna signal and for generating a detection signal in response thereto; and

means for generating an output signal in response to the detection signal.

9. (Original) The proximity detection circuit of claim 8 further comprising at least one static protection circuit having at least one first diode conducting away from ground and at least one second diode conducting toward a supply voltage.

10. (Original) The proximity detection circuit of claim 8 further comprising means for filtering alternating current interference frequencies from the detection signal.

11. (Original) The proximity detection circuit of claim 8 further comprising means for amplifying the detection signal.

12. (Currently Amended) A method of detecting capacitance changes comprising:

charging an antenna with an oscillating signal;

detecting changes in an antenna signal with a detector circuit, the antenna signal being representative of an external ~~capacitve~~ capacitive load on the antenna;

buffering an impedance mismatch between the antenna and the detector circuit with an operational amplifier operated as a unity gain follower;

generating a detection signal from the detector circuit in response to changes in the antenna signal; and

generating an output signal in response to the detection signal.

13. (Original) The method of claim 12, wherein generating the output signal includes comparing the detection signal to a reference voltage.

14. (Original) The method of claim 12, wherein charging the antenna with the oscillating signal includes charging the antenna with an oscillating asymmetric signal.

15. (Original) The method of claim 12, wherein detecting changes in the antenna signal includes detecting a peak voltage.

16. (Original) The method of claim 12 further comprising preventing oscillation by including a current limiting resistor at an output terminal of the operational amplifier.

17. (Original) The method of claim 12 further comprising filtering out alternating current interference frequencies from the detection signal.

18. (Original) The method of claim 12 further comprising amplifying the detection signal.

19. (Original) The method of claim 12 further comprising filtering out changes in DC voltage levels from the detection signal while passing transient portions thereof.

20. (Currently Amended) A method of detecting capacitance changes comprising:

charging an antenna with an oscillating signal;

providing protection from static utilizing at least one static protection circuit comprising at least one first diode adapted to conduct away from ground and at least one second diode adapted to conduct toward a supply voltage;

buffering an impedance mismatch between the antenna and a detector circuit with an operational amplifier operated as a unity gain follower;

detecting changes in an antenna signal with [[a]] the detector circuit, the antenna signal being representative of an external ~~capacitve~~ capacitive load on the antenna;

generating a detection signal from the detector circuit in response to changes in the antenna signal; and

generating an output signal in response to detection of changes in the detection signal.

21. (Original) The method of claim 20 wherein generating the output signal includes comparing the detection signal to a reference voltage.

22. (Original) The method of claim 20, wherein charging the antenna with the oscillating signal includes charging the antenna with an oscillating asymmetric signal.

23. (Original) The method of claim 20, wherein detecting changes in the antenna signal includes detecting a peak voltage.

24. (Original) The method of claim 20 further comprising preventing oscillation by including a current limiting resistor at an output terminal of the operational amplifier.

25. (Original) The method of claim 20 further comprising filtering out alternating current interference frequencies from the detection signal.

26. (Original) The method of claim 20 further comprising amplifying the detection signal.

27. (Original) The method of claim 20 further comprising filtering out changes in DC voltage levels from the detection signal while passing transient portions thereof.

28. (Canceled)

29. (New) The proximity detection circuit of claim 1, wherein the detector circuit is adapted to output the detection signal in response to changes in peaks of the antenna signal over time.

30. (New) The proximity detection circuit of claim 1, wherein the antenna forms one conducing side of a capacitor.

31. (New) The proximity detection circuit of claim 1, wherein the antenna comprises a single wire antenna.

32. (New) The proximity detection circuit of claim 1, wherein the antenna signal is an exponential waveform signal.

33. (New) The proximity detection circuit of claim 32, wherein the oscillator is adapted to provide charge to the antenna in the form of an oscillating signal and the exponential waveform signal is representative of the integral of the oscillating signal.

34. (New) The proximity detection circuit of claim 1, wherein the antenna is coupled in series with one or more resistors, and the operational amplifier is in

electronic communication with a conductive element disposed between the antenna and the one or more resistors.

35. (New) The proximity detection circuit of claim 8, wherein the detection means generates the detection signal in response to detected changes in peaks of the antenna signal over time.

36. (New) The proximity detection circuit of claim 8, wherein the antenna forms one conducing side of a capacitor.

37. (New) The proximity detection circuit of claim 8, wherein the antenna comprises a single wire antenna.

38. (New) The proximity detection circuit of claim 8, wherein the antenna signal is an exponential waveform signal.

39. (New) The proximity detection circuit of claim 38, wherein the exponential waveform signal is representative of the integral of the oscillating signal.

40. (New) The proximity detection circuit of claim 8, wherein the antenna is coupled in series with one or more resistors, and the operational amplifier is in electronic communication with a conductive element disposed between the antenna and the one or more resistors.

41. (New) The method of claim 12, wherein charging the antenna with the oscillating signal comprises generating an exponential waveform signal.

42. (New) The method of claim 41, wherein charging the antenna with the oscillating signal comprises integrating the oscillating signal with the antenna to generate the exponential waveform signal.

43. (New) The method of claim 12, wherein generating the detection signal comprises generating the detection signal in response to changes in peaks of the antenna signal over time.

44. (New) The method of claim 12, wherein the antenna forms one conducing side of a capacitor.

45. (New) The method of claim 12, wherein the antenna comprises a single wire antenna.

46. (New) The method of claim 12, wherein the antenna is coupled in series with one or more resistors, and detecting changes in the antenna signal comprises placing the detector circuit in electronic communication with a conductive element disposed between the antenna and the one or more resistors.

47. (New) The method of claim 20, wherein charging the antenna with the oscillating signal comprises generating an exponential waveform signal.

48. (New) The method of claim 47, wherein charging the antenna with the oscillating signal comprises integrating the oscillating signal with the antenna to generate the exponential waveform signal.

49. (New) The method of claim 20, wherein generating the detection signal comprises generating the detection signal in response to changes in peaks of the antenna signal over time.

50. (New) The method of claim 20, wherein the antenna forms one conducing side of a capacitor.

51. (New) The method of claim 20, wherein the antenna comprises a single wire antenna.

52. (New) The method of claim 20, wherein the antenna is coupled in series with one or more resistors, and detecting changes in the antenna signal comprises placing the detector circuit in electronic communication with a conductive element disposed between the antenna and the one or more resistors.